TABLE 9

Heat capacity in calories of gases above 0° per gram molecule (or for 22.32 liters ==0.78822 cubic foot of gas).

Temperature *C.* Degrees	N_2 = 28 O_2 = 32. CO = 28	H_20 = 18	CO_2- 44	CH_4 = 16	Molecular weights given in grams
0	0.00	0.00	0.00	0.00	.t.u. per cubic foot = 5.03794X calories per
200	1.39	1.73	1.85	2.19	
400	2.82	3.69	3.99	4.85	
600	4.31	5.87	6.44	8.02	unce molecule = 22.32 cubic feet .t.u. per ounce molecule = 112.472077X calories
800	5.82	8.23	9.07	11.46	
1000	7.43	10.98	12.42	15.77	
1200	9.05	13.87	15.55	20.37	
1400	10.73	17.00	19.18	22.44	
1600	12.46	20.35	23.10	30.99	
1800	14.21	23.86	27.21	35.86	
2000	16.05	27.76	31.84	43.55	Calories per cubic meter =44.80287 X calorics per gram molecule
2200	17.01	31.82	36.65	50.54	
2400	19.84	36.10	41.76	58.02	
2600	21.81	40.62	47.16	66.04	

Heat capacity values are based on the formulas developed by Mallard and Le Chatelier.

As hydrocarbon gases dissociate when exposed to high temperatures the heat capacity values for CH_4 have a theoretical value above 800°.

Simmersbach in *Journal of Chemical Industry,* Feb. 28, 1913, page 186, and in *Journal fur Gasbeleuchtung,* Dec. 13, 1913, page 1242, gives data covering his experiments in regard to the decrease in heating value of gases containing hydrocarbons.